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Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

Forty-seventh session
Geneva, 22 June – 26 June 2015
Item 10 (b) of the provisional agenda
Issues relating to the Globally Harmonized System of Classification and Labelling of Chemicals: tests and criteria for oxidizing liquids and solids

Round Robin testing programme – Test O.2: Test for oxidizing liquids and Test O.3: Test for oxidizing solids Step 1: "Test O.2: Test for oxidizing liquids"

Report on progress

Transmitted by the expert from France[1]

Introduction

1. During its seventh session the Committee approved the programme of work of its two sub-committees for the biennium 2015–2016 (see ST/SG/AC.10/42, para 15; ST/SG/AC.10/C.3/92, para 95; ST/SG/AC.10/C.4/56, annex III). This programme of work includes the tests and criteria for oxidizing liquids and solids.

2. As indicated by the expert from France in ST/SG/AC.10/C.3/2014/95-ST/SG/AC.10/C.4/2014/19, the calendar for the Round Robin Testing (RRT) Programme in Tests O.2 and O.3 has been applied and the RRT programme has been started with Step 1: "Test O.2: test for oxidizing liquids.".

[1] In accordance with the programme of work of the Sub-Committee for 2015–2016 approved by the Committee at its seventh session (see ST/SG/AC.10/C.3/92, paragraph 95 and ST/SG/AC.10/42, para. 15).

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Report on progress

3. Following the invitation sent by INERIS (Institut National de l'Environnement Industriel et des Risques), France, in September 2014, eleven laboratories from seven countries have confirmed their willingness to participate in this RRT Programme.

4. As leading laboratory INERIS selected three cellulose candidates as replacement cellulose in Test O.2 and proposed to the participating laboratories a draft RRT programme for Test O.2 in January 2015. Based on the comments received, the final approved RRT Programme has been issued in February 2015 and the three cellulose samples have been shipped to the participating laboratories.

5. The overall results from the participating laboratories are expected in May 2015 with a view to presenting those first results to the sub-committees in June/July 2015.

6. The next steps of the RRT programme are identified in ST/SG/AC.10/C.4/2014/95-ST/SG/AC.10/C.3/2014/19, see table in para 1.

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Sub-Committee of Experts on the Transport of Dangerous Goods

Forty-seventh session
Geneva, 22 – 26 June 2015
Item 3 of the provisional agenda
Listing, classification and packing

Classification of seed cake

Transmitted by the expert from Germany[1]

Introduction

1. At the forty-sixth session, Germany submitted ST/SG/AC.10/C.3/2014/80 proposing amendments to the entry of seed cake. The amended proposal below takes into account comments made by delegations during and after the 46th session.

Background

2. The Model Regulations contain the following entries for SEED CAKE,

(a) UN 1386, with more than 1.5% oil and not more than 11% moisture; and

(b) UN 2217, with not more than 1.5% oil and not more than 11% moisture.

3. The transport of seed cake was discussed several times at IMO on the basis of several proposals for the transport of seed cake as maritime bulk transport according to the International Maritime Solid Bulk Cargo Code (IMSBC Code). The schedules of the IMSBC Code are based on the United Nations Recommendations classification and additionally differentiate between UN 1386 (a) mechanically expelled seeds, containing more than 10% of oil or more than 20% of oil and moisture combined and UN 1386 (b)

[1] In accordance with the programme of work of the Sub-Committee for 2015-2016 approved by the Committee at its seventh session (refer to ST/SG/AC.10/C.3/92, paragraph 95 and ST/SG/AC.10/42, para. 15).

solvent extractions and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 10%, not more than 20% of oil and moisture combined. The differentiation between UN 1386 (a) and UN 1386 (b) has been also incorporated in the International Maritime Solid Bulk Cargo Code (IMDG Code). Furthermore, the IMSBC Code contains a schedule for non-hazardous seed cake, dealing with the maritime bulk transport of seed cake not fulfilling the criteria for assignment to Division 4.2.

4. Germany came to the conclusion that the schedules for seed cake in the IMSBC Code should be reviewed to remove the inconsistencies and submitted proposals for amendments to the IMSBC Code to the IMO Sub-Committee on Carriage of Cargoes and Containers at its first session (CCC1) (Doc. CCC 1/5/2, CCC 1/5/3 and CCC 1/5/4). It became obvious that the name and the description make an unambiguous assignment difficult.

5. The present entries UN 1386 SEED CAKE and UN 2217 SEED CAKE do not correctly include whole seeds (soya beans, sunflower beans etc.), materials not related to seeds (citrus pulp) or extracted seeds that have not been shaped into "cakes" (bakery materials, meal, oily etc.). Thus, the shipping name does not describe all the types of oily vegetables and relevant derivatives that are being offered for shipment or will be offered for shipment in the future.

6. The classification of present entries is based on the description of the properties, in particular on the basis of content of oil or moisture. The requirements for safe transport are presently not verified by tests in accordance with Division 4.2 criteria.

7. A new name and description should be introduced in the Model Regulations to ensure that all dangerous oily vegetable cargoes are covered, irrespective of whether they are fresh and/or whole vegetables, processed vegetables (whatever be their production process, hot/cold extraction, pressure extraction, steam or solvent extraction). The new name and description should not refer to the oil or moist content; the classification of the cargoes should rely, as far as possible, on experimental data.

8. The proposal does not aim to bring materials currently not classified under the umbrella of dangerous goods regulations. Substances not yet covered by the term seed cake but fulfilling the criteria for assignment to Division 4.2 should be already shipped as UN 3088 SELF-HEATING SOLID, ORGANIC, N.O.S.. Also the name "seed cake" does not limit the scope to self-heating products, this is clearly demonstrated by the schedule for non-hazardous seed cake in the IMSBC-Code and the various proposals for the IMSBC-Code on seed cakes which had been tested and were found to be not self-heating:

Material	DSC Document	Number of tested samples	Status of proposal
Citrus Pulp Pellets	14/4/5	14	amendment 01-11
Dried destillers grains with solubles	15/4/2	20	amendment 01-11
Corn gluten meal	16/4/14	8	amendment. 02-13
Corn gluten feed pellets	16/4/14	8	amendment 02-13
Beet pulp pellets	17/4/27	7	amendment 02-13
Grain screening pellets	17/4/8	10	amendment 02-13

9. The two UN Nos. 1386 and 2217 are assigned to Division 4.2 packing group III. There is no difference in the requirements for transport between the two entries, except for the packing instruction. P 003 is applicable to UN No. 1386 and P 002 is applicable to UN No 2217. The ratio of this assignment is questionable, as the less stringent packing instruction P 003 applies to the potentially more dangerous entry with the higher oil content. Consequently, there is no reason for distinguishing between the two UN Numbers, and one entry is sufficient. P 003 should be assigned to the new entry.

10. The proposal has been amended on the basis of several comments. The following aspects were considered:

- An additional entry for packing group II has been included to cover substances meeting the criteria for inclusion in packing group II. It is proposed to assign IBC 08 like for fishmeal. This leads to a consequential amendment to the guiding principles.
- The proposed name was changed into "OILY VEGETABLE MATERIAL" (instead of oily vegetables and/or their processing by-products). Processing by-products are not mentioned as an alternative name as they are covered by the term oily vegetable materials.
- The classification should rely, as far as possible, on experimental data. However, a special provision has been included to give some guidance on the substances concerned. Several experts were in favour of using the existing UN number. It is therefore proposed to use UN 1386.
- Concerns were expressed because of the fact that hazards exhibited in bulk may not be the same as when transported in packaged form especially as the UN testing regimes are based on small sample sizes. However, the different levels of hazard and the influence of the amount is relevant for all class 4.2 substances and reflected in 33.3.1.1.1 of the Manual and Criteria: The Manual of Test and Criteria establishes exemptions in dependence of the volume of the packaging
- Concerns were expressed that the general description would require testing of every shipment to demonstrate that the product is not classified as dangerous goods. However, it is a general problem of natural products that their properties may vary and it is always the responsibility of the consigner to classify the substances properly, taking into consideration the available information and experience as well as testing data as far as reasonable. The dangerous goods regulations are based on a system trusting the consignors' classification.
- In the context of the review of the proposal, the expert of Germany was made aware of an ongoing inconsistency in special provision 29, whereas the French is not exactly the same as in the English text. There is no mention of the division number in the French translation of the special provision.

Proposal

11. Chapter 3.2: Replace the existing entries UN 1386 and UN 2217 with new entries as follows:

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
1386	OILY VEGETABLE MATERIAL	4.2		II	29 142 223 xxx	0	E0	P002 IBC 08 LP 02	PP20 B3, B6		
1386	OILY VEGETABLE MATERIAL	4.2		III	29 142 223 xxx	0	E0	P003 IBC08 LP02	PP20 B3, B6		

12. Chapter 3.3: Insert the following new special provision:

XXX This entry applies to but is not limited to oily vegetable material which remains, after oil has been extracted by a solvent process or expelled mechanically from oil bearing seeds, and to other food industry residues made from cereals or vegetable pulp, containing oil. Examples of oils seeds are copra, cottonseed, linseed, niger seed, palm kernel, peanut, rape seed, sesame seed, safflower seed, soya bean and sunflower seed. Examples of other products are barley malt, beet pulp, bran, brewers grain, cereal pellets, citrus pulp, corn gluten, hominy chop, maize pulp and rice, broken or barn.

Consequential amendments

13. In the index replace the two entries for SEED CAKE with the following:

"Seed cake, *see* 4.2 1386"

and insert the following new entry:

"OILY VEGETABLE MATERIAL 4.2 1386"

14. Amend PP20 and B6 accordingly.

15. Amend the table in 4.2 of the guiding principles as follows (new words underlined)

IBC packing instruction assignments				
Class or Division	**Special properties**	**Subsidiary risk**	**PG**	**IBC instruction**
4.2	Liquids	-	II	IBC02
	Solids with a subsidiary risk	-	II	IBC05
	Solids without a subsidiary risk	None	II	IBC06
	Fish meal, unstabilized (UN 1374), <u>Oily vegetable material (UN1386)</u> and Organic pigments, self-heating (UN 3313)	-	II	IBC08
	Liquids	-	III	IBC02
	Maneb (UN 2210)	-	III	IBC06
	Solids	-	III	IBC08

16. Amend Special Provision 29 of the **French version** as follows:

Cette matière n'est pas soumise à l'étiquetage, mais elle doit être marquée du numéro de la classe ou de la division.

Annex

Data sheet to be submitted to the United Nations for new or amended classification of substances

Submitted by **Germany** **Date 2014-07-29**

Supply all relevant information including sources of basic classification data. Data should relate to the product in the form to be transported. State test methods. Answer all questions – if necessary state "not known" or "not applicable" – if data is not available in the form requested, provide what is available with details. Delete inappropriate words.

Section 1 Substances identity

1.1 Chemical name none

1.2 Chemical formula none

1.3 Other names/synonyms whole seeds (soya beans, sunflower beans etc.), materials not related to seeds (citrus pulp) or extracted seeds that have not been shaped into "cakes"

1.4.1 UN Number new 1.4.2 CAS number none

1.5 Proposed classification for the Recommendations

1.5.1 Proper shipping name (3.1.2) OILY VEGETABLES OR OILY VEGETABLE PROCESSING BY-PRODUCTS

1.5.2 Class/division 4.2 subsidiary risk(s) none packing group III

1.5.3 Proposed special provisions, if any 29, 223

1.5.4 Proposed packing instruction(s) P002 PP20

Section 2 Physical properties

2.1 Melting point or range not known

2.2 Boiling point or range not known

2.3 Relative density at:

2.3.1 15 °C not known

2.3.2 20 °C not known

2.3.3 50 °C not known

2.4 Vapour pressure at:

2.4.1 50 °C not applicable

2.4.2 65 °C not applicable

2.5 Viscosity at 20 °C not known m^2/s

2.6 Solubility in water at 20 °C not known g/100 ml

2.7 Physical state at 20 °C (2.2.1.1) solid

2.8 Appearance at normal carriage temperatures, including colour and odour not known

2.9 Other relevant physical properties

Section 3 Flammability

3.1 Flammable vapour

3.1.1 Flash point (2.3.3) not applicable closed cup

3.1.2 Is combustion sustained? (2.3.1.2) not applicable

3.2 Autoignition temperature not known

3.3 Flammability range (LEL/UEL) not applicable

3.4 Is the substance a flammable solid? (2.4.2) no

3.4.1 If yes, give details ...

Section 4 Chemical properties

4.1 Does the substance require inhibition/stabilization or other treatment such as nitrogen blanket to prevent hazardous reactivity? no

If yes, state

4.1.1 Inhibitor/stabilizer used

4.1.2 Alternative method

4.1.3 Time effective at 55 °C

4.1.4 Conditions rendering it ineffective

4.2 Is the substance an explosive according to paragraph 2.1.1? (2.1) no

4.2.1 If yes, give details

4.3 Is the substance a desensitized explosive? (2.4.2.4) no

4.3.1 If yes, give details

4.4 Is the substance a self-reactive substance? (2.4.1) no

If yes, state

4.4.1 exit box of flow chart

What is the self-accelerating decomposition temperature (SADT) for a 50 kg package? .. °C

Is the temperature control required? (2.4.2.3.4) yes / no

4.4.2 proposed control temperature for a 50 kg package ... °C

4.4.3 proposed emergency temperature for a 50 kg package ... °C

4.5 Is the substance pyrophoric? (2.4.3) no

4.5.1 If yes, give details

4.6 Is the substance liable to self-heating? (2.4.3) yes

4.6.1 If yes, give details

May self-heat slowly and, if wet or containing an excessive proportion of unoxidized oil, ignite spontaneously.

4.7 Is the substance an organic peroxide (2.5.1) no

If yes state

4.7.1 exit box of flow chart

What is the self-accelerating decomposition temperature (SADT) for a 50 kg package? ... °C

Is the temperature control required? (2.5.3.4.1) yes / no

4.7.2 proposed control temperature for a 50 kg package ... °C

4.7.3 proposed emergency temperature for a 50 kg package ... °C

4.8 Does the substance in contact with water emit flammable gases (2.4.4) no

4.8.1 If yes, give details ...

4.9 Does the substance have oxidizing properties (2.5.1) no

4.9.1 If yes, give details ...

4.10 Corrosivity (2.8) to:

4.10.1 mild steel ... none

4.10.2 aluminium ... none

4.10.3 other packing materials none

(specify) no ... mm/year at ...

... ... mm/year at ...

4.11 Other relevant chemical properties ... not known ...

Section 5 Harmful biological effects

5.1 LD 50, oral (2.6.2.1.1) not known mg/kg Animal species ...rat..

5.2 LD 50, dermal (2.6.2.1.2) not known mg/kg Animal species ...

5.3 LC 50, inhalation (2.6.2.1.3) not known mg/litre Exposure time ... hours

or ..... ml/m^3 Animal species ...

5.4 Saturated vapour concentration at 20 °C (2.6.2.2.4.3) ..... ml/m^3

5.5 Skin exposure (2.8) results

Exposure time ... not known hours/minutes

Animal species ...

5.6 Other data ...

5.7 Human experience ... not known

Section 6 Supplementary information

6.1 Recommended emergency action

6.1.1 Fire (include suitable and unsuitable extinguishing agents)

Batten down

6.1.2 Spillage

6.2 Is it proposed to transport the substance in:

6.2.1	Bulk Containers (6.8)	no
6.2.2	Intermediate Bulk Containers (6.5)	yes
6.2.3	Portable tanks (6.7)	no

If yes, give details in Sections 7. and/or 8.

Section 7 Bulk containers (only complete if yes in 6.2.1)

7.1 Proposed type(s)

Section 8 Intermediate bulk containers (IBCs)

(only complete if yes in 6.2.2)

8.1 Proposed type(s) IBC08, B3, B6

Section 9 Multimodal tank transport (only complete if yes in 6.2.3)

Description of proposed tank (including IMO tank type if known)

9.2 Minimum test pressure

9.3 Minimum shell thickness

9.4 Details of bottom openings, if any

9.5 Pressure relief arrangements

9.6 Degree of filling

9.7 Unsuitable construction materials

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Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 3 of the provisional agenda
Listing, classification and packing.

Application of the criteria for environmentally hazardous substances to articles

Submitted by the expert from Germany[1]

Introduction

1. In its meeting in autumn 2011, based on an informal document submitted by the Swedish expert (see informal document INF.31 of the September 2011 session of the RID/ADR/ADN Joint Meeting), the RID/ADR/ADN Joint Meeting addressed the question of whether the criteria for environmentally hazardous substances were applicable also to articles. The report of the Joint Meeting (document ECE/TRANS/WP.15/AC.1/124) states the following on this issue:

"63. The Joint Meeting considered that the current provisions on substances hazardous to the aquatic environment did not apply to articles, since the criteria of 2.2.9.1.10 clearly referred to substances, mixtures and solutions. In order for the current provisions to apply to articles, criteria would have to be defined that referred to the different substances or components contained in the article and to the article itself. The texts would also have to be amended accordingly."

2. Germany also raised this issue within the framework of the IMO Sub-Committee DSC 17 (document DSC 17/3/7) and proposed not to classify articles as marine pollutants. For this purpose, amendments to Chapter 2.10 of the IMDG Code were proposed, as there –

[1] In accordance with the programme of work of the Sub-Committee for 2015-2016 approved by the Committee at its seventh session (refer to ST/SG/AC.10/C.3/92, paragraph 95 and ST/SG/AC.10/42, para. 15).

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unlike in the classification criteria – articles are mentioned. In the discussion, it was noted that this matter was a multimodal issue and Germany agreed to submit the issue to the United Nations TDG and GHS Sub-Committees (see para. 3.5 of document DSC 17/17).

3. In the meantime, the TDG Sub-Committee has addressed the issue of the classification of vehicles and engines. In the forthcoming 19th revision of the Recommendations on the Transport of Dangerous Goods, Model Regulations, there will be an entry UN 3530 ENGINE, INTERNAL COMBUSTION or MACHINERY, INTERNAL COMBUSTION which applies to internal combustion engines and machinery with fuels that meet the classification criteria for environmentally hazardous substances but not the criteria of any other class (see ST/SG/AC.10/42/Add.1). In this context, the Sub-Committee thus explicitly decided that the provisions for environmentally hazardous substances also apply to articles containing such substances. This issue also arises in connection with the discussion regarding dangerous goods in apparatus and articles.

Conclusions

4. The German expert draws the following conclusions from the above:

(a) The criteria for environmentally hazardous substances are applicable to articles if these are vehicles and internal combustion engines and machinery that are powered by environmentally hazardous fuels.

(b) If these fuels only meet the criteria under 2.9.3 but are not to be assigned to any other class, vehicles are to be assigned to UN number 3166 and engines and machinery to UN number 3530.

(c) The criteria for environmentally hazardous substances are also applicable to articles if these are other machinery, apparatus or articles containing environmentally hazardous substances.

(d) If the substances contained in machinery, apparatus and articles only meet the criteria under 2.9.3 but are not to be assigned to any other class, UN number 3363 is assigned.

(e) For articles not to be assigned to UN 3166, UN 3528, UN 3529, UN 3530, UN 3363 or to one of the entries for machinery, apparatus and articles to be newly created, the criteria for environmentally hazardous substances need not be applied. Thus, the wording in 2.9.3 does not need to be amended.

(f) Whether articles which are to be assigned to UN 3166, UN 3528, UN 3529 or one of the entries for machinery, apparatus and articles to be newly created and contain environmentally hazardous substances which also meet the criteria of another class (e.g. fuel of Class 3 with environmentally hazardous properties) must additionally be declared and marked as environmentally hazardous has to be decided by the bodies responsible for the individual modes of transport.

5. These conclusions do not have an impact on the GHS; for this reason, it is currently not necessary to involve the GHS Sub-Committee.

Proposal

6. The Sub-Committee is invited to discuss the above issues and agree on an interpretation.